



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s) B. David Silverman  
Docket No.: YOR920030162US1  
Serial No.: 10/616,880  
Filing Date: July 10, 2003  
Group: 1631  
Examiner: Russell Scott Negin

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Signature: Susan J. Feltman Date: February 10, 2006

Title: Hydrophobic Moment of a Tertiary Protein Structures

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TRANSMITTAL LETTER

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith is a Response to Restriction Requirement relating to the above-identified patent application. There is no additional claim fee due in connection with the Response.

In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **IBM Corporation Deposit Account No. 50-0510** as required to correct the error. A duplicate copy of this letter is enclosed.

Respectfully submitted,

Kevin M. Mason

Kevin M. Mason  
Attorney for Applicant(s)  
Reg. No. 36,597  
Ryan, Mason & Lewis, LLP  
1300 Post Road, Suite 205  
Fairfield, CT 06824  
(203) 255-6560

Dated: February 10, 2006



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**Patent Application**

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Docket No.: YOR920030162US1  
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Signature: Susan J. Jutra Date: February 10, 2006

Title: Moment Analysis of Tertiary Protein Structures

RESPONSE TO RESTRICTION REQUIREMENT

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This paper is responsive to the Examiner's January 13, 2006 Official Action.

The Examiner found that the claims of the instant application, which are directed to hydrophobic moment of a tertiary protein structure, describe two distinct inventions. The Examiner therefore required that the application be restricted to one of the following inventions under 35 U.S.C. 121:

- I. Claims 1- 9 and 14-21, drawn to a method, apparatus, or article of manufacture for calculating a moment of a tertiary protein structure; and
- II. Claims 10-13, drawn to methods for calculating at least two tertiary protein structures, classified in class 702, subclass 19.

Applicants respectfully assert that the restriction requirement is improper and should be withdrawn, since each Group is generally drawn to moment analysis of tertiary protein structures, and it is believed that a complete search for each Group would require a search of most, if not all, of the individual classes and subclasses. Accordingly, Applicant submits that an examination of both Groups would not impose a serious burden on the Examiner. Where, as here, "the search and examination of an entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to distinct or independent inventions." MPEP §803.

Accordingly, it is respectfully requested that the restriction requirement be reconsidered and withdrawn and that all of the pending claims in the application be examined together in this application, or, alternatively, Applicant hereby elects Group I, claims 1-9 and 14-21, for prosecution in this application.

In the present Office Action, the Examiner is further requiring election of species for the following category of Group I:

Category #1: Type of metric to be used.

Specie A: correlation between residue centroid magnitude and residue solvent accessibility is enhanced using a distance metric. (claims 2, 18).

Specie B: correlation between residue centroid magnitude and residue solvent accessibility is enhanced using an ellipsoidal metric. (claims 3, 19).

Specie C: correlation between residue centroid magnitude and residue solvent accessibility is enhanced using a solvent accessibility metric. (claims 4, 20).

Applicants respectfully traverse the species election requirement.

First, the Examiner has issued the species election requirement on the alleged basis that “[e]ach metric is independent and requires its own method steps.” See Office Action, page 3, 2<sup>nd</sup> paragraph. However, Specie B, as identified by the Examiner, is not directed to an independent metric requiring its own method steps, but rather to a type of distance metric, as described in Specie A. See, for example, Specification, beginning on page 10, line 7, where it is stated that, “There are other distance metrics that correlate more closely with residue solvent exposure than the ellipsoidal metric.” (Emphasis added). Clarification of the species election requirement regarding this Embodiment is respectfully requested.

Further, M.P.E.P. §806.04(a) clearly states that a reasonable number of species may be claimed in one application. Further, M.P.E.P. §803 states that “[i]f the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.” Since Species A and B are directed to the same type of metric (see argument above), there are ultimately only two Species directed to the correlation between residue centroid magnitude and residue solvent accessibility. Applicants respectfully submit that this is a reasonable number of species, and therefore, the search and examination of all of the claims associated with these Species would not present a serious burden.

Notwithstanding the traversal, Applicants provisionally elect Specie A wherein correlation between residue centroid magnitude and residue solvent accessibility is enhanced using a distance metric.

The Examiner further required a listing of all claims readable on the elected species. Applicants respectfully submit that, arguably, all of the pending claims, i.e., claims 1-21, are readable on Specie A. Namely, “[c]laims to be restricted to different species must be mutually exclusive. The general test as to when claims are restricted, respectively, to different species is the fact that one claim recites limitations which under the disclosure are found in a first species but not in a second, while a second claim recites limitations disclosed only for the second species and not the first.” M.P.E.P. §806.04(f).

For example, Specie A is directed to enhancing the correlation between residue centroid magnitude and residue solvent accessibility using a distance metric. Dependent claims 2 and 18 similarly recite that the correlation between residue centroid magnitude and residue solvent accessibility is enhanced using a distance metric. Dependent claims 3 and 19 recite that the correlation between residue centroid magnitude and residue solvent accessibility is enhanced using an “ellipsoidal metric,” which, as illustrated above, is a type of distance metric.

As such, none of claims 2-3, or 18-19, for example, recite characteristics that are mutually exclusive of one another. Therefore, as stated above, Applicants submit that all of the pending claims, i.e., claims 1-21, are readable on Specie A.

Further, Applicants point out that once a generic claim is allowed, “all of the claims drawn to species in addition to the elected species which include all the limitations of the generic claim will . . . be . . . allowable in view of the allowance of the generic claim.” See M.P.E.P. §806.04(d).

Also, in the present Office Action, the Examiner is further requiring election of species for the following category of Group I:

Category #2: Type of amphiphilicity to be employed.

Specie D: the global linear hydrophobic moment characterizes an amphiphilicity of the tertiary protein structure. (claim 6).

Specie E: the global linear hydrophobic moment characterizes the magnitude of the amphiphilicity of the tertiary protein structure. (claim 7).

Specie F: the global linear hydrophobic moment characterizes the direction of the amphiphilicity of the tertiary protein structure. (claim 8).

Applicants respectfully traverse the species election requirement.

First, the Examiner has issued the species election requirement on the alleged basis that “[e]ach type of amphiphilicity is independent and requires its own method steps. Thus, the search required would pose undue burden when searched together.” See Office Action, page 4, 1<sup>st</sup> paragraph. However, Species E and F, as identified by the Examiner, are not directed to different types of amphiphilicity at all, but rather to measurements that characterize an amphiphilicity of Specie D. See, for example, Specification, beginning on page 12, line 24, wherein it is stated that, “Defining a global linear hydrophobic moment would yield a dual measure comprised of the magnitude and direction of protein amphiphilicity. Thus, the global linear hydrophobic moment characterizes the amphiphilicity of the protein.” Clarification of the species election requirement regarding this Embodiment is respectfully requested.

Further, M.P.E.P. §806.04(a) clearly states that a reasonable number of species may be claimed in one application. Further, M.P.E.P. §803 states that “[i]f the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.” Since Speices E and F are not directed to different types of amphiphilicity from Specie D (see argument above), Applicants respectfully submit that the search and examination of all of the claims associated with these Embodiments would not present a serious burden.

Notwithstanding the traversal, Applicants provisionally elect Specie D wherein the global linear hydrophobic moment characterizes an amphiphilicity of the tertiary protein structure.

The Examiner further required a listing of all claims readable on the elected species. Applicants respectfully submit that, arguably, all of the pending claims, i.e., claims 1-21, are readable on Specie D. Namely, “[c]laims to be restricted to different species must be mutually exclusive. The general test as to when claims are restricted, respectively, to different species is the fact that one claim recites limitations which under the disclosure are found in a first species but not in a second, while a second claim recites limitations disclosed only for the second species and not the first.” M.P.E.P. §806.04(f).

For example, Specie D is directed to the global linear hydrophobic moment characterizing an amphiphilicity of the tertiary protein structure. Dependent claim 6 similarly recites that the global linear hydrophobic moment characterizes an amphiphilicity of the tertiary protein structure. Also, as noted above, Species E and F, contained in dependent claims 7 and 8, are not directed to different types of amphiphilicity at all, but rather to measurements that characterize an amphiphilicity of Specie D (claim

6).

As such, none of claims 7-8, for example, recite characteristics that are mutually exclusive of one another. Therefore, as stated above, Applicants submit that all of the pending claims, i.e., claims 1-21, are readable on Specie D.

Further, Applicants point out that once a generic claim is allowed, "all of the claims drawn to species in addition to the elected species which include all the limitations of the generic claim will . . . be . . . allowable in view of the allowance of the generic claim." See M.P.E.P. §806.04(d).

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,



Kevin M. Mason  
Attorney for Applicant(s)  
Reg. No. 36,597  
Ryan, Mason & Lewis, LLP  
1300 Post Road, Suite 205  
Fairfield, CT 06824  
(203) 255-6560

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